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## ICF TECHNOLOGY INCORPORATED

### MEMORANDUM

TO: David Wineman, RPO, USEPA Region 6

THRU: K.H. Malone, Jr., FITOM *KHM*

THRU: Timothy A. Hall, AFTOM *TAH*

FROM: Terry D. Pierce, FIT Chemist *TDP*

DATE: June 28, 1988

RE: Union Carbide Corporation PA Reassessment  
Brownsville, TX  
Cerclis No. TXD008114092  
TDD No. F-6-8805-10  
PAN No. FTX0766PAA

The FIT was tasked to conduct a PA reassessment of the Union Carbide Corporation (UCC) facility located in Brownsville, TX. The facility is a butane oxidation plant which is capable of producing acetic acid, methyl ethyl ketone, ethyl acetate, formic acid, acetic anhydride and propionic acid.

The last CERCLA action for this facility was in the form of a site inspection dated February 12, 1981 (see Attachment A). Several events have occurred since the last CERCLA activity. UCC idled the plant and released its local employees in March, 1983. In January, 1984, UCC decided to sell the facility. To date, it is unknown whether UCC still owns or has sold the facility. In November, 1985, UCC proposed a RCRA closure (full-facility closure) for its plant in Brownsville. The closure plan was approved by the Texas Water Commission (TWC) on September 26, 1986. Closure began on April 27, 1987. Closure inspections were conducted by the TWC on April 30, 1987 and June 16, 1987. The June 16, 1987 inspection noted that closure was not complete and file information is lacking after this date concerning other inspections and a closure completion date.

The UCC facility has four solid waste management units (SWMU). The facility utilized a ball mill residue basin (surface impoundment), an incinerator, and two above ground tanks. The ball mill residue basin received ball mill residues, spent caustic soda and solids from sumps, tanks and other processing equipment. Chromium waste and corrosive wastes were also deposited in the basin. The incinerator handled 2,000 tons of waste annually which was comprised of ignitable wastes and formic acid. The incinerator has not been

Reviewed by 6H-ES  
Date \_\_\_\_\_

9834773

*D.G.* 9/12/88.

740-220000



June 28, 1988

Union Carbide Corporation PA Reassessment  
Brownsville, TX  
Cerclis No. TXD008114092  
TDD No. F-6-8805-10  
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used since 1978. File information did not address where the incinerator ash was disposed prior to 1978. All four units were included in the RCRA closure approved by TWC.

On May 4-6, 1982, UOC installed four monitoring wells around and near the ball mill residue basin under the direction of the TWC (see Attachment B). From the soil borings there appears to be a sand aquifer 1.5 to 4.5 feet in thickness occurring 13.5 to 16.5 feet below the ground surface. Below this unit there is a sandy clay with sand seams. Ground water quality from the four monitoring wells appears to be brackish to saline based upon the total dissolved solids content of the samples collected on December 2, 1982 and November 29, 1983. Concentrations range from 9,000 to 69,000 mg/L for Total Dissolved Solids (TDS), the majority of which appears to be sodium and chloride.

Ground water contamination appears to have occurred near the ball mill residue basin based upon a TWC letter to UOC dated June 22, 1986 (see Attachment C). The letter makes no reference to the substance or substances which has contaminated the ground water.

Ground water in the shallow aquifer does not appear to be utilized for drinking, irrigation, industrial or livestock in light of its brackish and saline qualities. General ground water maps of the area show ground water of usable quality approximately 7 miles west of the facility near Brownsville (see Attachment D). This water bearing formation near Brownsville is the alluvium aquifer of the Rio Grande River. Geological and hydrogeological data appears to be lacking concerning whether the shallow aquifer underneath the facility is in contact with the alluvium aquifer near Brownsville. The EPA Notification of Hazardous Waste Site form for this facility notes in Section I (see Attachment E) that test wells found no potable water source within 8 miles of the facility. This leaves the question of whether there are irrigation or industrial water wells in the area.

A Preliminary Assessment, EPA Form T2070-2, (see Attachment F) was conducted for the UOC facility on April 1, 1980. Section V.C.4. notes the burial of asbestos mats by a previous owner of the facility, but does not mention the location of the burial. Another form (see Attachment G) states the location and the amount of asbestos buried. File information concerning the condition of the asbestos landfill after April 1, 1980 is lacking.

FTT recommends a site inspection to determine the present condition of

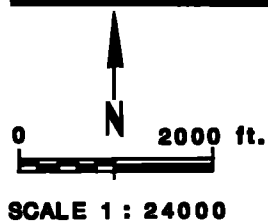
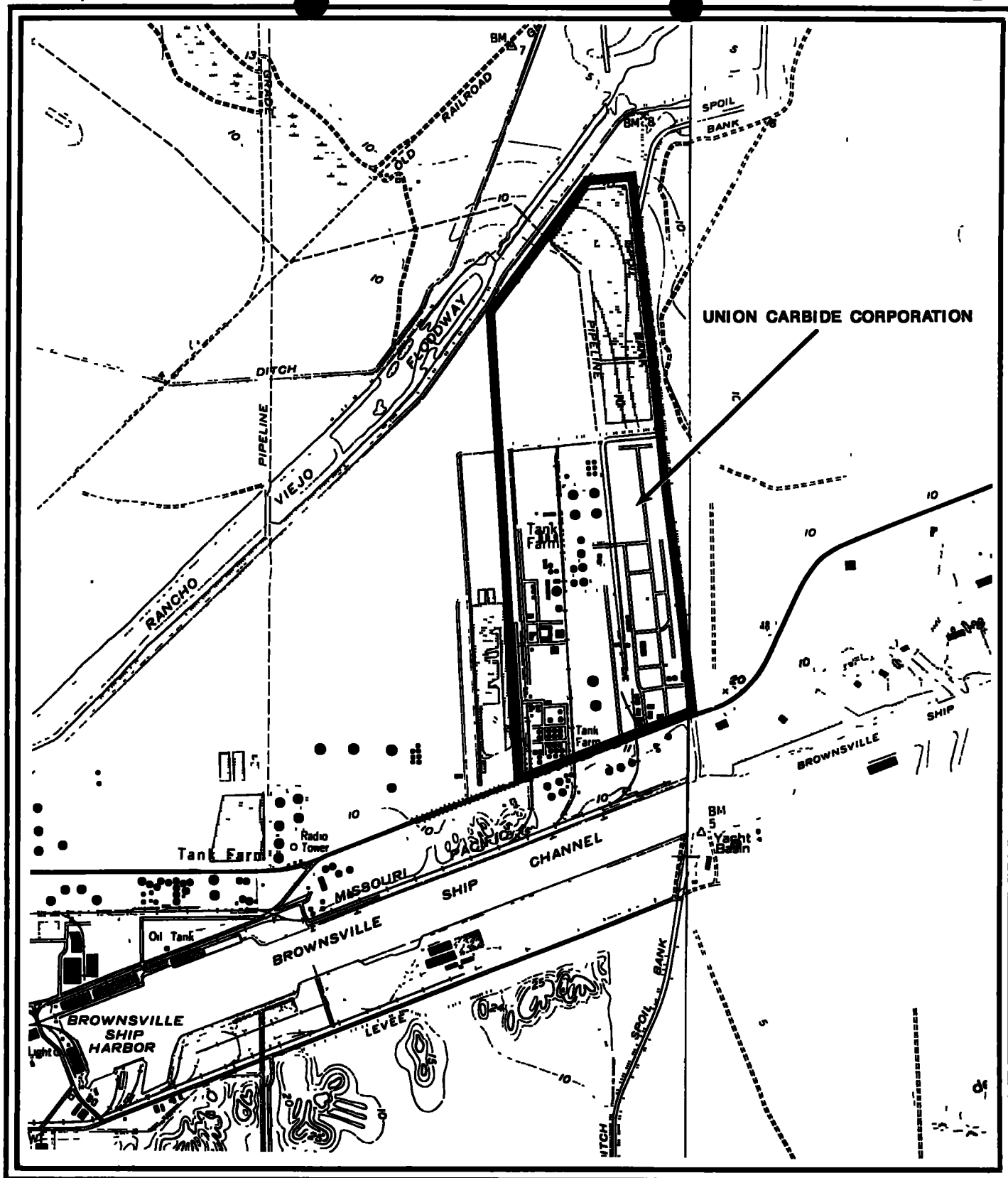
June 28, 1988

Union Carbide Corporation PA Reassessment  
Brownsville, TX  
Cerclis No. TXD008114092  
TDD No. F-6-8805-10  
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the facility and the condition of the asbestos landfill and to ascertain potential hazards to surface and ground waters in the vicinity. FIT also recommends a water well reconnaissance within 3 miles of the facility. FIT recommends further investigation into the disposal practices of UCC concerning the ash from the incinerator.

TDP/tdp



**SITE LOCATION MAP**  
**UNION CARBIDE CORPORATION**  
 BROWNSVILLE, TX  
 CERCLIS NO. TXD008114092  
 TDD NO. F-6-8805-10  
 PAN NO. FTX0766PAA



QUADRANGLE LOCATION  
 EAST BROWNSVILLE, TEX.  
 PALMITO HILL, TEX.

**ATTACHMENT A**

T411-00015

**ATTACHMENT B**

T40124116



UNION CARBIDE CORPORATION  
COATINGS MATERIALS DIVISION  
P.O. BOX 3370, BROWNSVILLE, TEXAS 78520

31108

RECEIVED

MAY 24

ENFORCEMENT  
FIELD OPERATION

May 17, 1982

Mr. Harvey Davis, Executive Director  
Texas Department of Water Resources  
P. O. Box 13087, Capitol Station  
Austin, Texas 78711

Solid Waste Registration No. 31108 and  
Part A Hazardous Waste Permit Application  
Cameron County

Dear Mr. Davis:

This letter is in response to your letter of February 23, 1982.

By means of this letter, we hereby notify you that we have installed a ground-water monitoring system for our surface impoundment in conformance with TDWR Rule 156.22.12.002. The wells were installed on May 4-6 by NFS/National Soil Services, Inc. in accordance with the guidelines received by our Messrs. J. L. Wyatt, K. G. Townsend, and W. H. Davies from Greg Tipple and J. G. Stadler of your Solid Waste Section at their technical conference on April 16.

A copy of NFS' well installation report is enclosed for your information.

In a forthcoming separate letter, we shall request a partial waiver concerning TDWR Rules 156.22.12.003-.005.

If you need further information, please contact Mr. W. H. Davies at (512) 831-4501, Extension 2281.

Very truly yours,

*W. W. McManus*  
W. W. McManus  
Assistant  
Plant Manager

WWM:mr

Att.

Via Certified Mail, Return Receipt Requested

Cc: Mr. Brian Dixon

Mr. John Sturgis w/att.

Mr. Greg Tipple w/att.

RECEIVED  
JUN 8 1982  
WK/TDWR



**NATIONAL SOIL SERVICES, INC. •**

**CONSULTING ENGINEERS  
5814 HEFFERNAN STREET  
HOUSTON, TEXAS 77087  
713/644-9161, TWX: 910-881-8482**

**Report No. 8262  
May 11, 1982**

**Union Carbide Corporation  
Coatings Materials Division  
P. O. Box 3370  
Brownsville, TX 78520**

**Attention: Mr. W. H. Davies**

**MONITOR WELL INSTALLATION  
WASTE PROCESSING AREA  
BROWNSVILLE, TEXAS**

**Gentlemen:**

Submitted here is our report on installation procedures and details for the recently completed monitor wells around the above referenced facility. Locations and general construction details of the wells were previously discussed with the Texas Department of Water Resources. Three wells were located to monitor potential seepage from the facility through the shallow sand stratum and a fourth well was located at a greater distance to monitor baseline conditions. This work was authorized by Purchase Order No. 526-344-016-4.

Monitor wells were installed at locations shown on Plate 1. Soil samples were obtained at each location to verify depth limits of the shallow sand stratum. Descriptions of the soils encountered and well installation details are shown on the logs of borings, Plates 2 through 5.

Drilling was done by the wash boring method using drill water obtained from the plant drinking water supply. Eight inch steel casing was set

**ATTACHMENT**



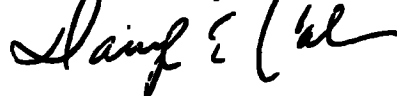
2.

through the near surface fill soils prior to drilling into the sand stratum. After setting the casing to depths ranging from five to 12 feet, the boreholes were flushed with clear water, and then advanced to completion depths. The steel casing was extracted on completion of backfilling. An air compressor equipped with a filter was used to develop all wells.

We appreciate the opportunity to assist you on this project. Please call upon us if we can be of further assistance.

Very truly yours,

NFS SERVICES, INC.

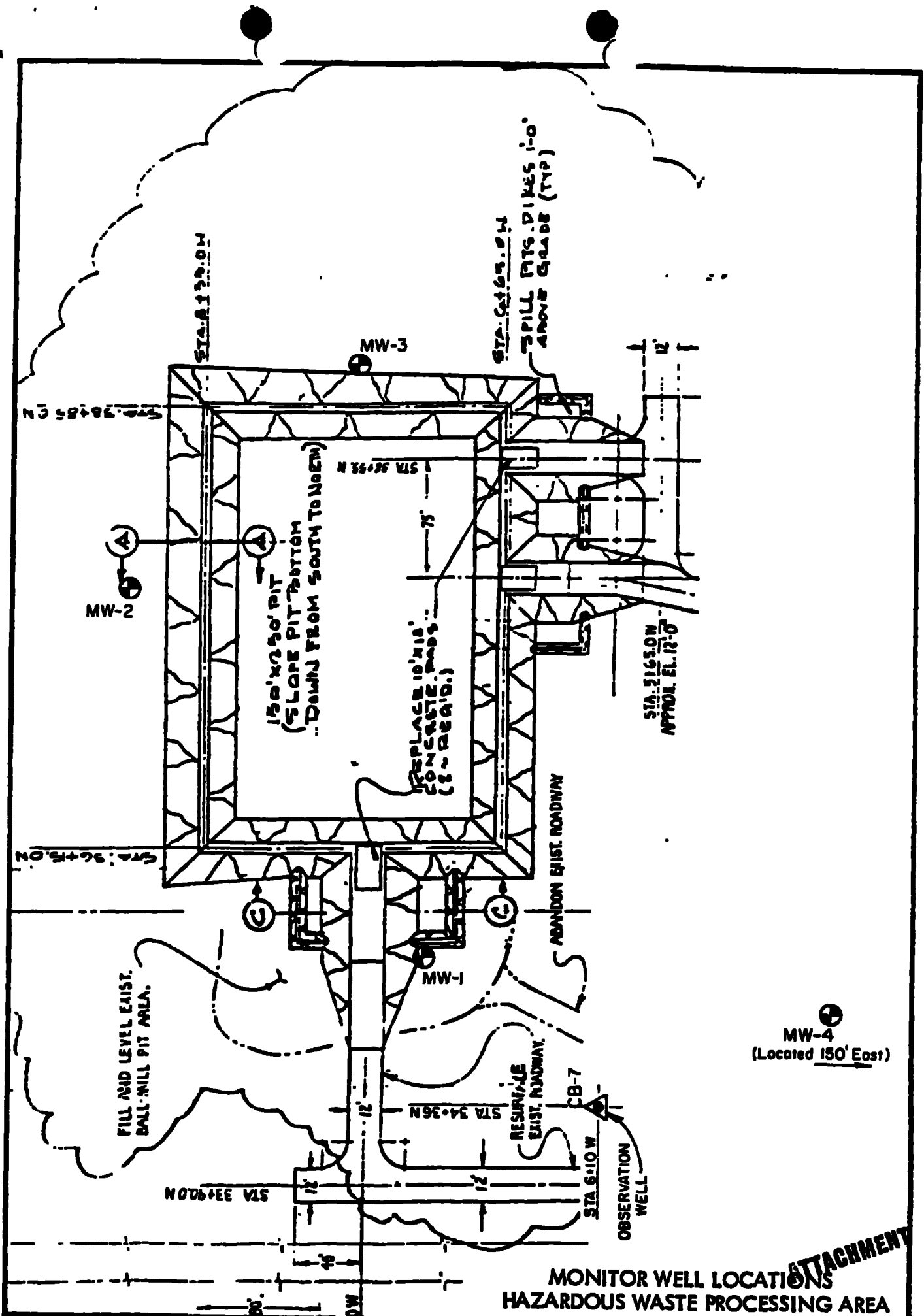


Darryl E. Carlson  
Chief Geologist

DEC/dp

Copies submitted: 5

**ATTACHMENT**



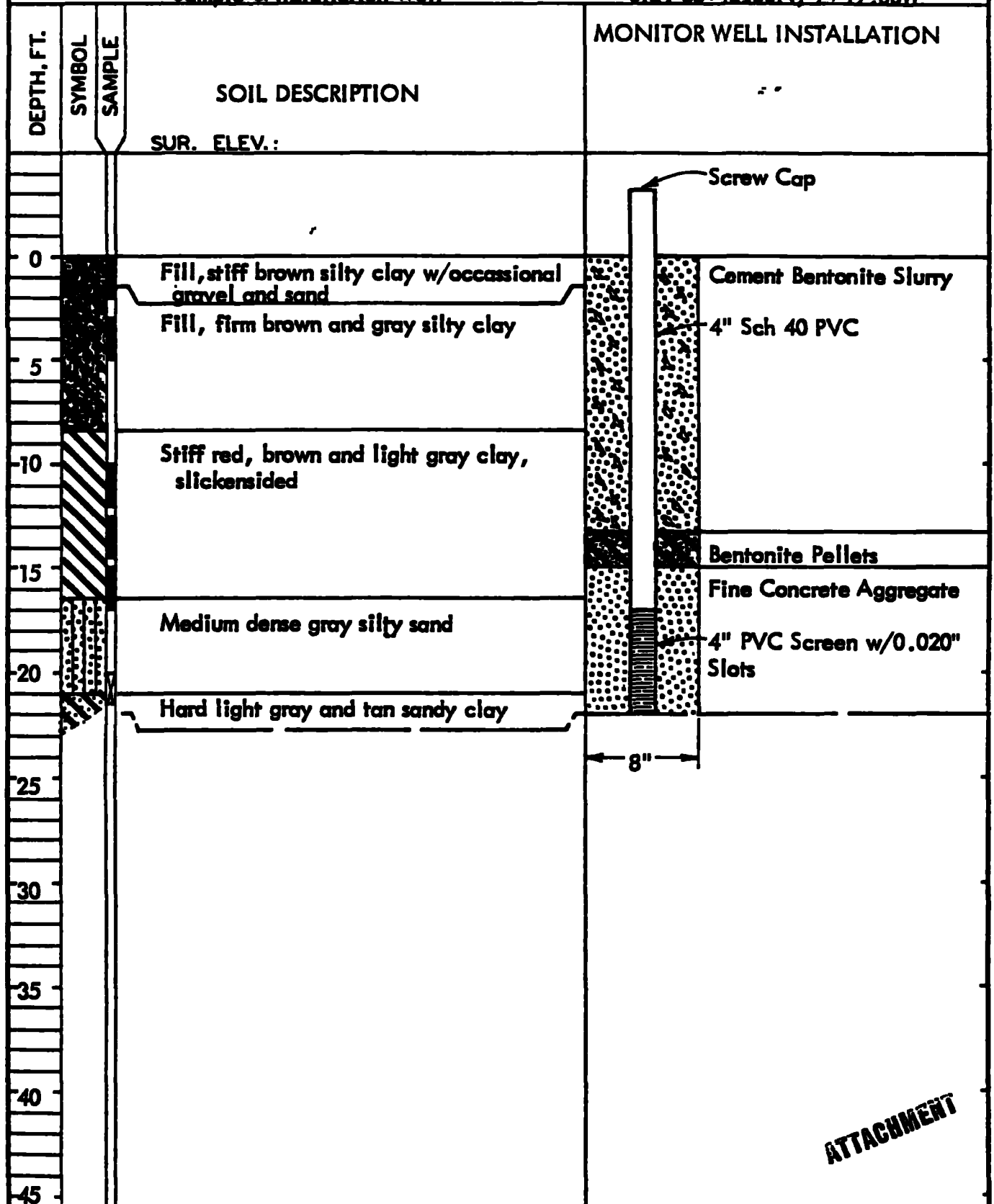
MONITOR WELL LOCATIONS  
 HAZARDOUS WASTE PROCESSING AREA

ATTACHMENT

**LOG OF BORING NO. MW-1  
MONITOR WELLS  
HAZARDOUS WASTE PROCESSING AREA  
UCC - BROWNSVILLE, TEXAS**

**TYPE BORING:** Sample & Installation Well

**LOCATION:** Sta. 35+43.00N, 7+19.00W



**ATTACHMENT**

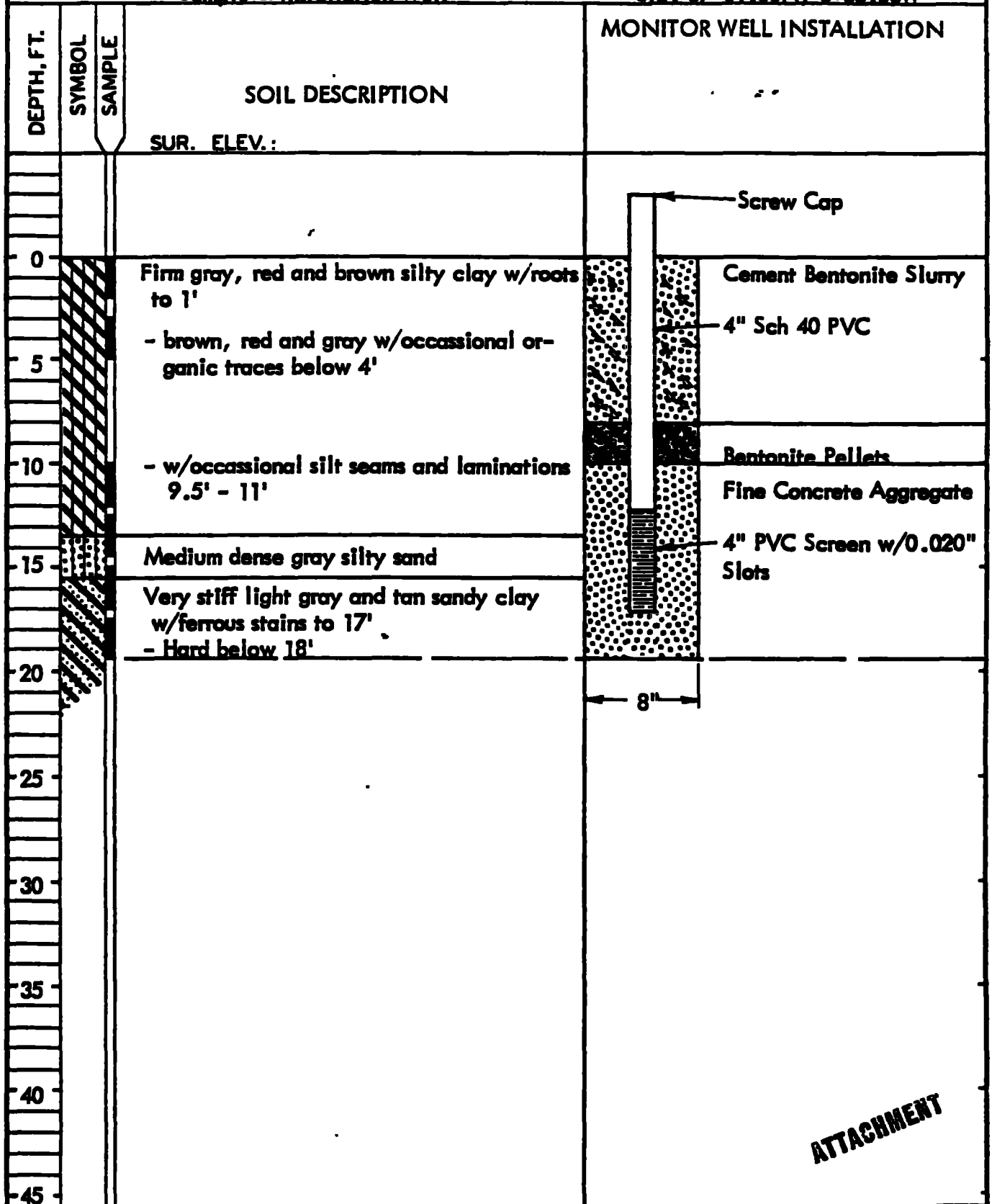
**COMPLETION DEPTH:** 22'  
**DATE:** May 6, 1982

**DEPTH TO WATER:** Not Measured  
**DATE:**

**LOG OF BORING NO. MW-2  
MONITOR WELLS  
HAZARDOUS WASTE PROCESSING AREA  
UCC - BROWNSVILLE, TEXAS**

**TYPE BORING:** Sample & Installation Well

**LOCATION:** Sta. 37+81.00N, 8+86.00W



**COMPLETION DEPTH:** 19.5'  
**DATE:** May 4, 1982

**DEPTH TO WATER:** 5.9'  
**DATE:** May 6, 1982

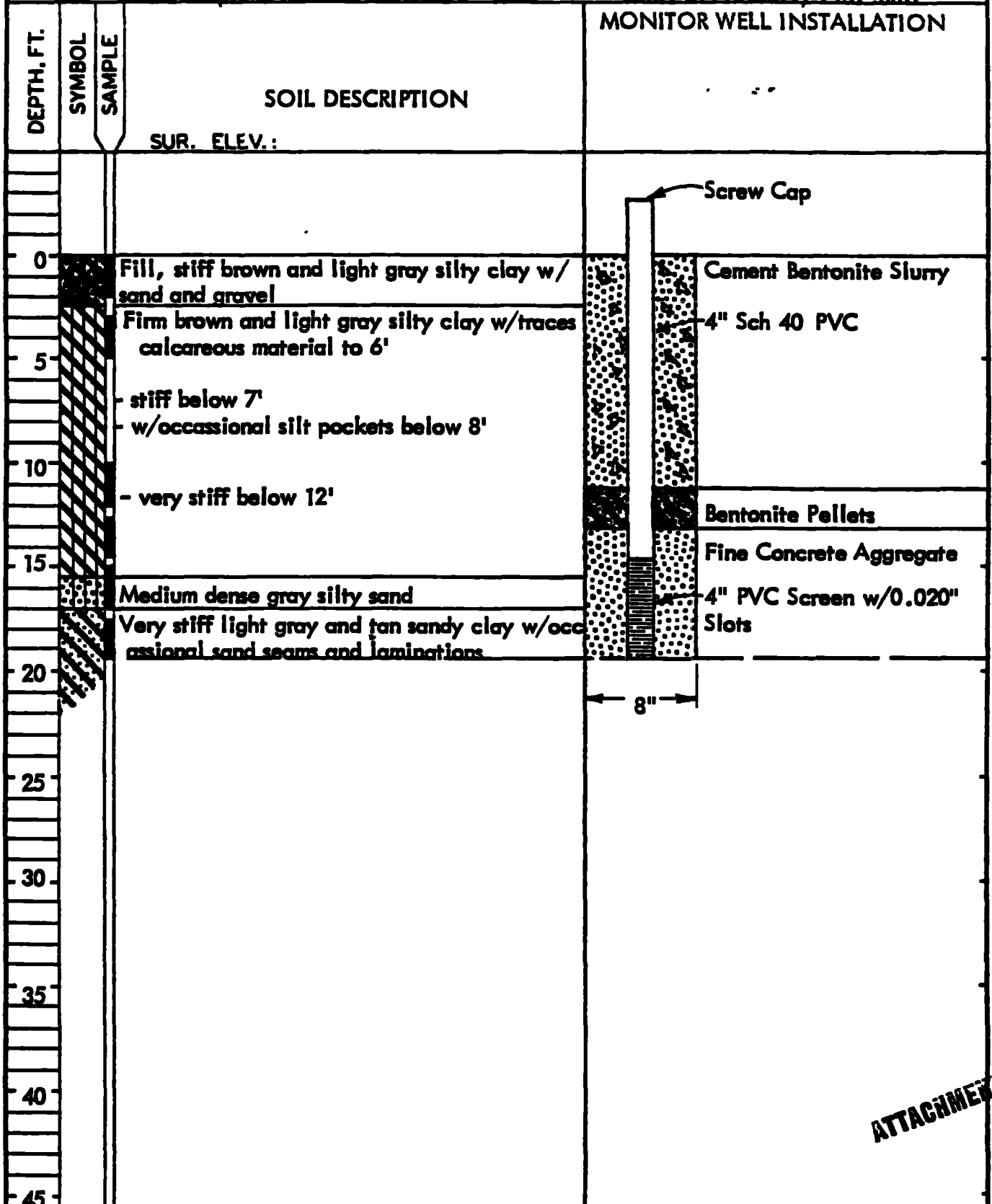
**ATTACHMENT**

**LOG OF BORING NO. MW-3  
MONITOR WELLS  
HAZARDOUS WASTE PROCESSING AREA  
UCC - BROWNSVILLE, TEXAS**

**TYPE BORING:** Sample & Installation Well

**LOCATION:** Sta. 39+12.00N, 7+57.00W

**MONITOR WELL INSTALLATION**



**COMPLETION DEPTH:** 19.5'  
**DATE:** May 5, 1982

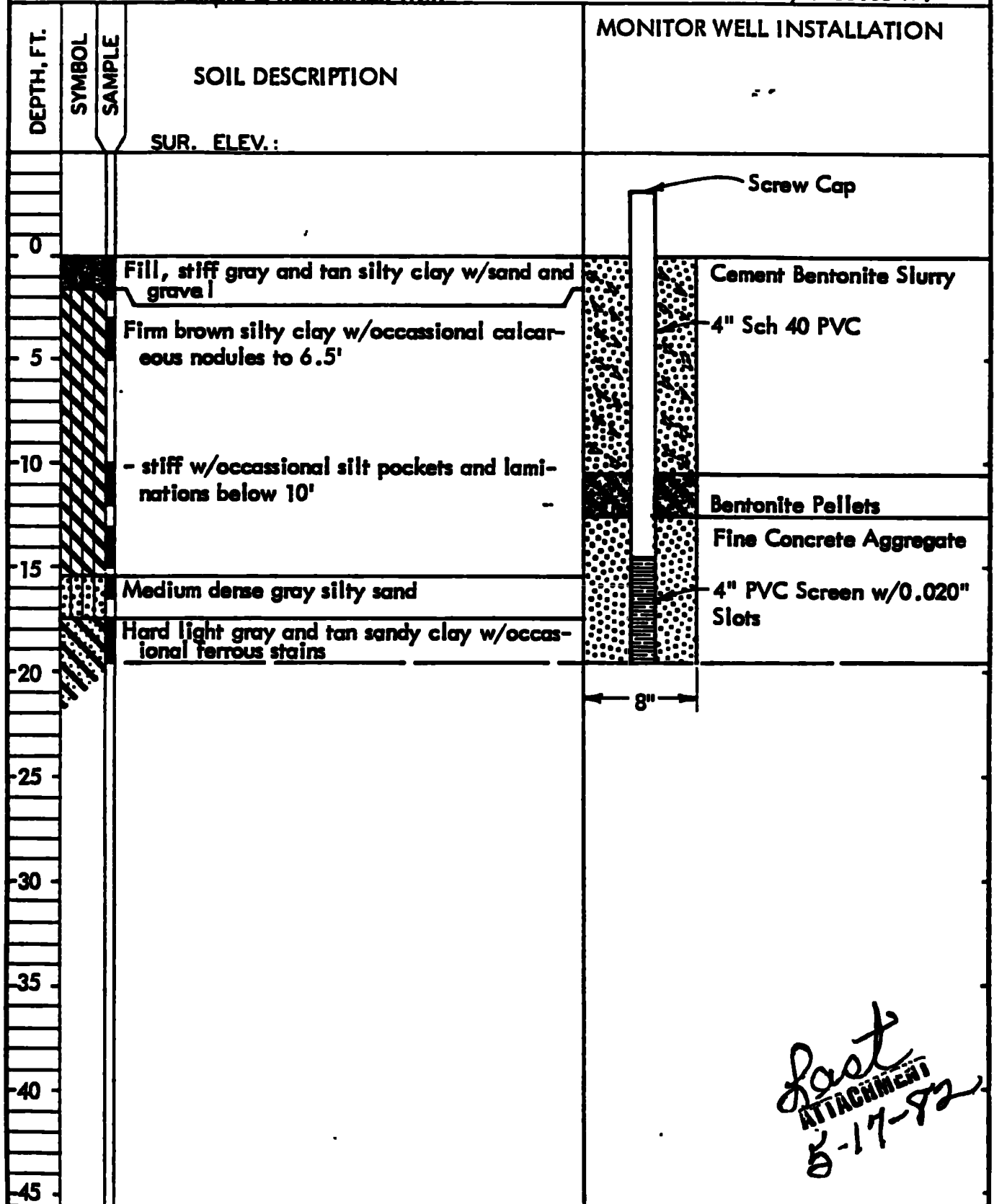
**DEPTH TO WATER:** Not Measured  
**DATE:**

**ATTACHMENT**

**LOG OF BORING NO. MW-4  
MONITOR WELLS  
HAZARDOUS WASTE PROCESSING AREA  
UCC - BROWNSVILLE, TEXAS**

**TYPE BORING:** Sample & Installation Well

**LOCATION:** Sta 34+98.00N, 3+30.00 W.



*fast*  
**ATTACHMENT**  
**8-17-82**

**COMPLETION DEPTH:** 19.5'  
**DATE:** May 5, 1982

**DEPTH TO WATER:** Not Measured  
**DATE:**

**ATTACHMENT C**

7409200017

TXD008.14092 IA  
07h3

# TEXAS WATER COMMISSION

Paul Hopkins, Chairman  
Ralph Roming, Commissioner  
John O. Houchins, Commissioner



Larry R. Soward, Executive Director  
Mary Ann Hefner, Chief Clerk  
James K. Rourke, Jr., General Counsel

June 22, 1987

Mr. Allen C. Booth  
Union Carbide Corporation  
Engineering, Manufacturing and  
Technology Service Department  
Health, Safety and Environmental Technology  
P. O. Box 8361  
South Charleston, WV 25303

Re: Union Carbide Corporation, Brownsville Plant  
Solid Waste Registration No. SW-31108  
Comprehensive Ground Water Monitoring Evaluation

Dear Mr. Booth:

The subject facility was inspected on November 11, 1986 by representatives of our Austin and District 11 offices. This inspection included a Comprehensive Ground Water Monitoring Evaluation (CME). The purpose of the CME is to determine the adequacy of a site's interim status ground-water monitoring program. This review has been completed for this facility and it is the opinion of our technical staff that the ground-water contamination documented by TWC co-sampling results constitutes a violation of the Texas Administrative Code and Chapter 26 of the Texas Water Code and for which formal enforcement action may be taken.

31 TAC 335.4/Texas Water Code Chapter 26.121 - TWC co-sampling results indicate the release of numerous solid waste constituents into the ground water in the vicinity of the Ball Mill Residue Basin Waste Management Unit.

A discrepancy in the analytical results reported to the Commission was also noted. The TWC chloride results from the co-sampling of the RCRA monitor wells were significantly less than those reported by the facility.

The facility sampling and analysis plan should be augmented and updated to reflect that ground-water samples collected for Total Organic Carbon (TOC) should be preserved with either hydrochloric or sulfuric acid in the field or should be analyzed within 7 days of sample collection.

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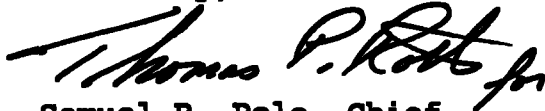
Mr. Alan C. Booth  
page 2  
June 22, 1987

Within 30 days of receipt of this letter, submit to the RCRA Ground Water Enforcement Unit for review the following:

1. A ground-water quality investigation plan capable of determining the rate and extent of solid waste constituent migration in the uppermost and all hydraulically-connected lower aquifers;
2. A revised sampling and analysis plan to reflect the proper handling of TOC samples; and,
3. Corrected chloride concentration values for all four assessment sampling events.

If you have any question regarding the above, please contact Carol Boucher at (512)463-8425.

Sincerely,



Samuel B. Pole, Chief  
Hazardous and Solid Waste Enforcement Section  
Hazardous and Solid Waste Division

CB:cb

cc: TWC District 11 office  
Scott Huling, TWC H&SW Permits Section  
TWC H&SW Reports and Management Section ✓

**ATTACHMENT D**

-46-20114

TEXAS WATER COMMISSION

Joe D. Carter, Chairman  
O. F. Dent, Commissioner  
H. A. Beckwith, Commissioner

BULLETIN 6305

RECONNAISSANCE INVESTIGATION OF THE GROUND-WATER RESOURCES  
OF THE GULF COAST REGION, TEXAS

By

Leonard A. Wood, R. K. Gabrysch, and Richard Marvin  
United States Geological Survey

Prepared by the U.S. Geological Survey  
in cooperation with the  
Texas Water Commission

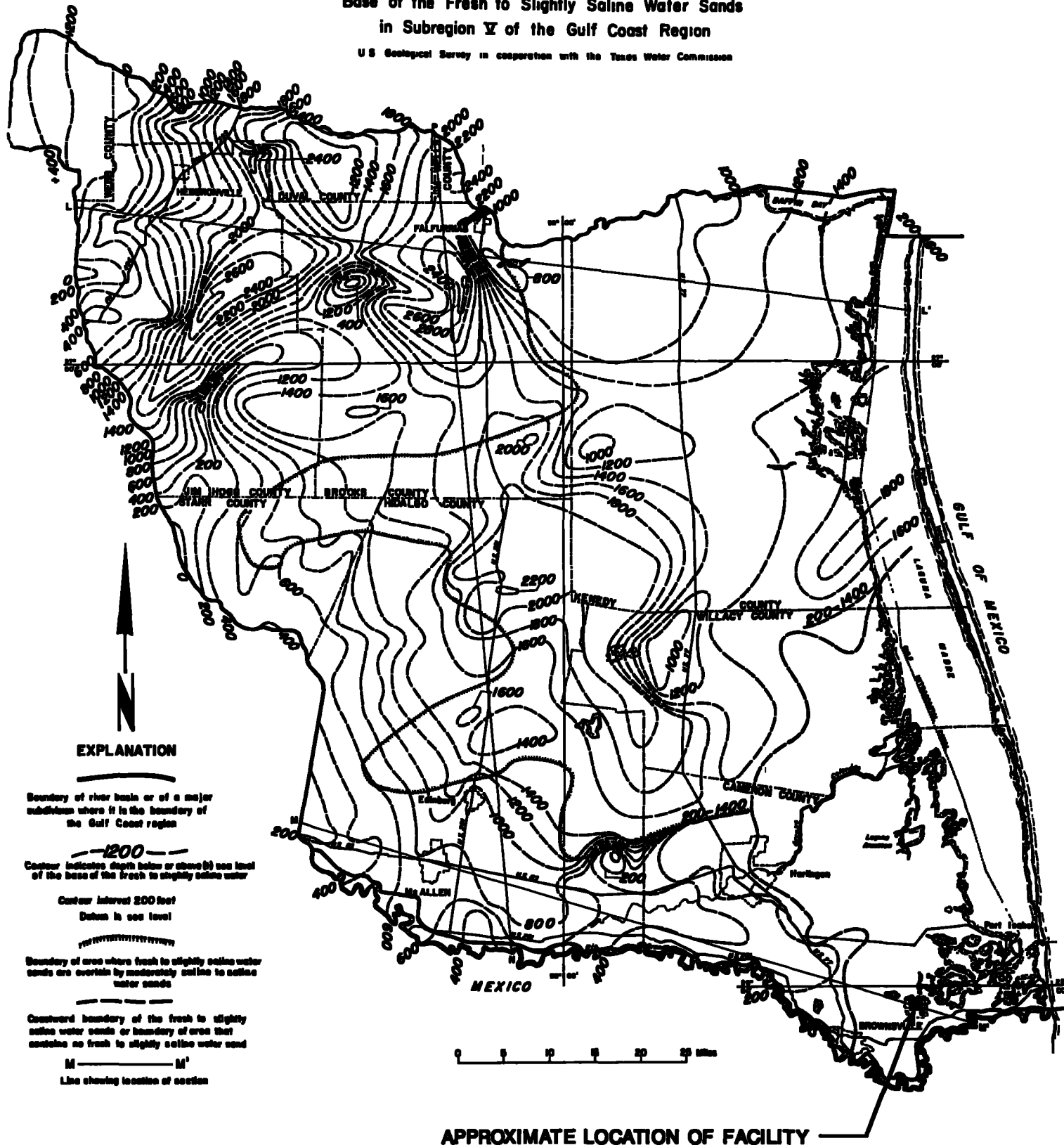
June 1963

Second Printing November 1971  
by  
Texas Water Development Board

# UNION CARBIDE CORPORATION BROWNSVILLE, TEXAS

## Base of the Fresh to Slightly Saline Water Sands in Subregion V of the Gulf Coast Region

U.S. Geological Survey in cooperation with the Texas Water Commission



**ATTACHMENT E**

40321-019